

RACIAL DIFFERENCES IN PERSONALITY, BEHAVIOR, AND FAMILY ENVIRONMENT IN MINNEAPOLIS SCHOOL CHILDREN

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Racial differences in personality, behavior, and family environment of lower elementary school children were examined in a sample of 433 black and 897 white children. Numerous significant differences in scores on scales of the Missouri Children's Picture Series, the Missouri Children's Behavior Checklist, and the Family Environment Scale persisted after adjustment for socioeconomic status.

Important racial differences exist in the occurrence of several diseases thought to have psychosomatic components in their etiology. These include essential hypertension, coronary heart disease, accidents, and violence.¹⁻³ Prevention might be enhanced if precursors of these disorders could be detected in childhood. Children's personality, behavior, and family environment have been investigated as possible precursors of adult hypertension.⁴ Furthermore, these factors are candidates for explaining the higher incidence and

prevalence of hypertension in black adolescents and adults compared to whites.⁵ This report describes racial differences in children's personality, behavior, and family environment, and the extent to which these differences are explained by differences in social status.

METHODS

As part of the Minneapolis Children's Blood Pressure Study, a sample of 1,506 school children aged 6 to 10 years was selected by a two-stage sampling procedure as described elsewhere.^{4,6} Overall response rate at the initial stage was 99 percent and at the second stage 57 percent. Published elsewhere are further details of response rates and sample characteristics.^{4,6} Only black and white children will be considered here; a relatively small number of Indian and Asian children are excluded. A few mulatto children (n=35) are grouped with other black children. The number of subjects varies slightly among the tables because of missing data, especially for socioeconomic variables.

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Trained interviewers visited the children at home and administered to them the Missouri Children's Picture Series (MCPS), a 238-item thematic personality inventory.⁷ Each child's mother completed the Missouri Children's Behavior Checklist (MCBC), an inventory of 70 items describing possible child behaviors.⁸ The mother was also administered the Family Environment Scale (FES), a series of 90 statements describing the respondent's family environment, to which the respondent replies true or false.⁹ Scale scores of the FES, MCPS, and MCBC by age and sex are in Appendices 1, 2, and 3. Scores for white children have been published previously by others.⁷⁻⁸ Raw scores are used in all analyses. Parents of all children completed a questionnaire that included demographic and socioeconomic variables. Parent's occupation and education were used to compute Hollingshead's two-factor index of social position.¹⁰ This was done for the head of the household, arbitrarily defined as the father if present, otherwise the mother. Housewives and students were arbitrarily assigned to occupation category 6. Class V is the lowest and class I the highest socioeconomic status.

Standard statistical methods were used to compute means and measures of variation. To assess the statistical significance of black-white differences on the multiple scales of the various instruments, the Hotelling T^2 was computed for each instrument, and the two groups' Student's t tests considered only if the overall T square was significant at $P < .05$. The effect of social status was controlled by repeating these analyses within strata of Hollingshead social class.

RESULTS

Table 1 shows mean MCPS scale scores by race and sex. Overall differences were highly significant. For boys, the differences were significant for the following scales: MCPS 2 (masculinity/femininity), $P < .001$; MCPS 3 (maturity), $P < .001$; MCPS 6 (activity), $P < .001$; and MCPS 8 (somatization), $P < .001$. For girls the differences on individual scales were of only borderline signifi-

cance for MCPS 1 (conformity), $P = .06$; MCPS 2, $P = .07$; and MCPS 7 (sleep disturbance), $P = .07$. Thus, personality of black boys showed less masculinity, less maturity, and greater aggression and somatization on the MCPS than that of white boys in this age group. Personality of black girls showed slightly more conformity and femininity and slightly less sleep disturbance than that of white girls.

Table 2 shows mean MCBC scale scores by race and sex. Overall differences were highly significant. For boys the differences were significant on the following scales: MCBC 3 (activity), $P = .008$; MCBC 4 (sleep disturbance), $P < .001$; and MCBC 5 (somatization), $P = .004$. For girls, significant scale differences were MCBC 3, $P = .01$; and MCBC 4, $P < .001$. Thus black parents described the behavior of their sons as showing more activity, sleep disturbance, and somatization than did white parents. Black girls showed more activity and sleep disturbance than white girls.

Table 3 shows mean FES scale scores by race and sex. Overall differences were highly significant. For both sexes, differences were significant on the following scales: FES 3 (conflict), $P < .001$; FES 5 (achievement), $P < .001$; FES 7 (active/recreational), $P < .001$; FES 8 (moral/religious), $P < .001$; FES 9 (organization), $P = .004$; and FES 10 (control), $P < .001$. Thus for the relationship dimensions, black families showed less openly expressed conflict and similar supportive cohesion and expressiveness of feelings compared with white families. As to personal growth, black families showed more achievement orientation and moral-religious emphasis and similar concern for independence of members compared with white families. On system maintenance dimensions, black families showed more organization and control than white families.

Table 4 shows the Hollingshead social class distribution of heads of households by race and the percentage of households headed by women. The distribution of black families is shifted toward lower social strata. More black families are headed by women.

To establish whether the observed differences in personality, behavior, and family environment could be explained by social status differences, the analyses by race and sex were repeated within the following strata of Hollingshead class: stratum 1

TABLE 1. MISSOURI CHILDREN'S PICTURE SERIES SCALE SCORES BY RACE AND SEX

Scale	Boys				Girls				Both			
	White (n = 458)		Black (n = 215)		White (n = 439)		Black (n = 218)		White (n = 897)		Black (n = 433)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Conformity	25.1	7.94	25.1	7.84	26.0	7.38	24.8	8.62	25.5	7.68	25.0	8.24
2. Masculinity	14.2	3.91	12.9	3.62	8.2	4.10	8.8	3.82	11.2	5.01	10.8	4.26
3. Maturity	12.6	4.97	10.7	5.32	9.7	4.57	9.9	5.63	11.2	4.98	10.3	5.48
4. Aggression	11.3	2.90	12.5	2.68	13.2	2.39	13.1	2.39	12.2	2.82	12.8	2.55
5. Inhibition	13.9	4.33	14.0	4.36	15.0	4.02	14.9	3.68	14.4	4.22	14.4	4.06
6. Activity level	11.2	4.81	12.5	4.07	13.6	4.21	14.0	4.10	12.4	4.68	13.3	4.15
7. Sleep disturbance	11.2	3.87	10.6	4.06	10.9	3.67	10.8	4.21	11.1	3.77	10.7	4.13
8. Somatization	16.3	3.51	17.4	3.59	18.6	3.46	18.7	4.13	17.4	3.67	18.0	3.91
Hotelling T ²			35.93				17.23				31.23	
F			4.44				2.13				3.88	
P			.000				.031				.000	

TABLE 2. MISSOURI CHILDREN'S BEHAVIOR CHECKLIST SCORES BY RACE AND SEX

Scale	Boys				Girls				Both			
	White (n = 456)		Black (n = 213)		White (n = 438)		Black (n = 219)		White (n = 892)		Black (n = 432)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Aggression	7.1	2.01	7.1	2.25	7.6	1.79	7.8	2.17	7.4	1.92	7.4	2.23
2. Inhibition	4.0	3.29	4.3	3.23	3.0	2.80	2.9	2.97	3.5	3.11	3.6	3.18
3. Activity	2.4	1.94	2.9	2.37	2.3	1.86	2.7	2.41	2.3	1.90	2.8	2.39
4. Sleep disturbance	1.8	2.14	2.8	2.32	1.3	1.82	1.9	2.20	1.6	2.01	2.4	2.30
5. Somatization	1.0	1.40	1.4	1.54	1.1	1.41	1.1	1.45	1.1	1.40	1.3	1.50
6. Sociability	0.7	1.13	0.8	1.20	0.7	1.00	0.8	1.24	0.7	1.07	0.8	1.22
Hotelling T ²			35.79				24.70				53.91	
F			5.92				4.09				8.95	
P			.000				.001				.000	

TABLE 3. FAMILY ENVIRONMENT SCALE SCORES BY RACE AND SEX

Scale	Boys				Girls				Both			
	White (n = 454)		Black (n = 213)		White (n = 438)		Black (n = 215)		White (n = 892)		Black (n = 428)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Cohesion	7.5	1.72	7.2	1.66	7.5	1.63	7.4	1.61	7.5	1.67	7.3	1.63
2. Expressiveness	6.4	1.75	5.5	1.89	6.4	1.67	5.5	1.83	6.4	1.71	5.5	1.86
3. Conflict	3.5	2.02	3.2	1.85	3.5	2.06	3.0	1.83	3.5	2.04	3.1	1.84
4. Independence	6.4	1.37	6.2	1.32	6.4	1.30	6.4	1.36	6.4	1.34	6.3	1.34
5. Achievement	4.6	1.75	5.8	1.65	4.5	1.88	5.7	1.68	4.6	1.81	5.8	1.66
6. Intellectual/ cultural orientation	6.1	2.20	5.9	2.02	6.0	2.18	6.2	1.94	6.1	2.19	6.1	1.98
7. Active- recreational orientation	6.0	2.04	5.3	2.30	6.0	2.09	5.7	2.18	6.0	2.07	5.5	2.24
8. Moral-religious emphasis	6.0	2.09	6.5	1.82	5.8	2.17	6.8	1.76	5.9	2.13	6.6	1.79
9. Organization	5.8	2.08	6.0	2.01	5.6	2.27	6.1	1.98	5.7	2.18	6.1	1.99
10. Control	5.2	1.71	5.6	1.61	5.3	1.72	5.8	1.62	5.3	1.71	5.7	1.61
Hotteling T ²	101.95				122.22				216.76			
F	10.06				12.05				21.53			
P	.000				.000				.000			

TABLE 4. HOLLINGSHEAD SOCIAL CLASS, INCOME, AND SEX OF HEAD OF HOUSEHOLD BY RACE

Class	Black No. (%)	White No. (%)
I	17 (4.0)	106 (11.9)
II	49 (11.4)	167 (18.8)
III	97 (22.5)	240 (27.0)
IV	202 (47.0)	331 (37.2)
V	65 (15.1)	45 (5.1)
Total	430 (100)***	889 (100)
Family Income (dollars)		
< 4,000	30 (7.2)	30 (3.4)
4,000- 6,000	64 (15.3)	54 (6.1)
6,000- 8,000	54 (12.9)	46 (5.2)
8,000-10,000	49 (11.7)	45 (5.1)
10,000-12,000	38 (9.0)	58 (6.6)
12,000-15,000	26 (6.2)	82 (9.3)
15,000-20,000	65 (15.5)	195 (22.2)
20,000-35,000	78 (18.6)	293 (33.3)
≥35,000	15 (3.6)	76 (8.6)
Total	419 (100)**	879 (100)**
Female head of household	203 (49.0)	225 (25.3)

*Missing data

**Rounded percentage

(high)—classes I and II, stratum 2 (middle)—class III, and stratum 3 (low)—classes IV and V.

For the MCPS, overall racial differences for boys remained significant by Hotelling T square within stratum I ($F = 1.97$, $P = .05$), and stratum III ($F = 2.71$, $P = .007$). Within stratum I significant racial differences persisted for boys on MCPS 3, MCPS 4, MCPS 7, and MCPS 8, with little change in the direction or magnitude of the difference. Within stratum III, significant racial differences persisted for boys on MCPS scales 2, 3, 4, 6, and 8 with little change in direction or magnitude. For girls, the Hotelling T square was significant only within stratum III ($F = 2.72$, $P = .007$). Significant differences were observed on MCPS scales 1 ($P = .03$) and 6 ($P = .06$).

For the MCBC on boys, the Hotelling T^2 remained significant in stratum II ($F = 2.33$, $P = .03$), and stratum III ($F = 2.5$, $P = .02$). In strata II and III racial differences were significant on scale 4 ($P = .02$) and in stratum III on scale 4, the differences being somewhat larger than those shown in Table 2. For girls, the Hotelling T^2 remained significant only in stratum III. Racial differences in stratum III were significant on scale 4 ($P = .02$).

For the FES on boys, the Hotelling T^2 remained significant in stratum II ($F = 2.79$, $P = .003$) and in stratum III ($F = 8.85$, $P < .0001$). In stratum II, racial differences were significant for scales 2, 3, 5, and 7; in stratum III for scales 2, 5, 8, and 10. Differences were similar to those shown in Table 4. For girls, the Hotelling T^2 was significant for

stratum I ($F = 2.49$, $P = .009$) and stratum III ($F = 8.98$, $P < .0001$). In stratum II, racial differences were significant for scales 2 and 5; in stratum III, for scales 2, 3, 5, 6, 8, 9, and 10. Again differences were similar to those in Table 4. Thus, social class explained some but not all of the racial differences in personality, behavior, and family environment.

The effect of race was examined within one-year age strata for boys and for girls to exclude confounding by child's age and sex. For the MCPS, the Hotelling T^2 was significant for boys aged 8.5 to 9.4 years ($P = .06$) and 9.5 to 10.4 years ($P = .02$) and for girls aged 6.5 to 7.4 ($P = .07$), 7.5 to 8.4 ($P = .02$). For the MCBC, the Hotelling T^2 was significant for boys aged 7.5 to 8.4 ($P = .02$). The lack of significance at ages 6.5 to 7.4 and 9.5 to 10.4 are probably due to the small number of subjects in these strata. Thus, within each sex the racial differences are not due to differing age distributions.

DISCUSSION

Despite some conflicting results, other studies of black-white differences in scores on various tests of personality, behavior, and family environment of lower elementary school children indicate racial differences.⁶⁻³¹ Depending on the population and the instrument, studies have reported no important black-white differences,^{12,28,31} few inconsistent differences,¹⁹ or important differences,^{6,13-14,25,27,29} in personality scale scores. In behavior, black-white differences were lacking in one³⁰ but present in other studies.^{6,13,17,21,23,26,29,32} Two studies reported important black-white differences in family environment,^{18,24} but another did not.¹⁵ Only a few studies of personality,⁶ behavior,⁶ and family environments,^{16,18} used the same instruments as the present study; results agreed in all cases with the present study's findings of significant racial differences. Thus, these results are consistent with the literature. Further, this study presents the first direct statistical comparison of comparable black and white samples, using the

MCPS and MCBC, confirming the suggestion of racial differences made by the study of Kelley and King¹¹ of blacks. It is of interest to compare the MCPS and MCBC data of Kelley and King¹¹ collected from 437 black students aged 5 to 16 years in a public school in the southern United States with the present study's data from the northern United States. Most striking were the much lower aggression and much higher sociability scales scores on the MCBC of the southern black children as compared with those in the Minneapolis study. Differences in MCPS scores were smaller and less consistent. Shade²⁰ found regional personality differences between black children in Atlanta and Los Angeles.

These findings should be generalized with caution only to populations similar to that studied with the instruments used in our study. The findings are not likely explained by bias in sample selection. The possibility of confounding by factors other than those controlled, ie, other than age or sex, cannot be excluded. Possible factors that might confound racial differences would be those that are associated with race and scale scores in a sample but are not in the causal pathway. The failure to eliminate racial differences after controlling for Hollingshead social class indicates that the lower social class associated with black race in Minneapolis does not fully explain the differences. However, residual confounding by socioeconomic factors not measured or reflected in the Hollingshead index cannot be excluded.

SUMMARY

Significant differences existed between black and white children aged 6 to 10 years in scores on a number of scales on the Missouri Children's Picture series (a personality inventory), the Missouri Children's Behavior Checklist (a behavior inventory), and the Family Environment Scale. Most of these differences persisted after controlling for social class in a stratified analysis. These findings suggest that race-specific norms might be advisable for these tests when employed by psychiatrists

or psychologists or researchers conducting studies on normal or clinical populations. Further research is needed to determine the clerical significance of these findings and the causes of racial differences in scale scores.

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APPENDIX 1. FAMILY ENVIRONMENT SCALE SCORES BY AGE AND SEX FOR BLACK CHILDREN

Scale	Boys							
	Age 7		Age 8		Age 9		Age 10	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Cohesion	7.1	1.67	7.1	1.64	7.4	1.80	7.6	1.12
2. Expressiveness	5.8	1.77	5.5	1.78	5.5	2.02	4.8	1.99
3. Conflict	3.5	1.45	3.1	1.87	3.2	1.86	3.0	2.29
4. Independence	6.2	1.50	6.2	1.25	6.2	1.39	6.3	1.15
5. Achievement	5.5	1.65	5.9	1.68	5.6	1.57	6.1	1.77
6. Intellectual/ cultural orientation	5.2	2.35	5.9	1.92	5.8	2.07	6.8	1.58
7. Active- recreational orientation	5.2	2.43	5.2	2.21	5.4	2.41	5.7	2.20
8. Moral-religious emphasis	6.3	1.54	6.7	1.87	6.3	1.81	6.1	1.87
9. Organization	5.6	2.30	6.1	2.03	6.2	1.86	6.0	2.16
10. Control	5.2	1.90	5.9	1.44	5.5	1.59	5.2	1.86

Scale	Girls							
	Age 7		Age 8		Age 9		Age 10	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Cohesion	8.0	1.17	7.2	1.76	7.4	1.61	7.2	1.41
2. Expressiveness	5.7	1.70	5.3	1.91	5.7	1.81	5.5	1.83
3. Conflict	2.7	1.34	3.1	1.92	2.9	1.85	3.1	1.95
4. Independence	6.6	1.96	6.4	1.27	6.4	1.28	6.5	1.21
5. Achievement	5.2	2.16	5.9	1.42	5.7	1.72	5.9	1.64
6. Intellectual/ cultural orientation	6.6	1.89	5.9	2.02	6.5	1.83	6.0	2.00
7. Active- recreational orientation	6.2	1.90	5.4	2.12	5.9	2.21	5.0	2.41
8. Moral-religious emphasis	7.0	1.57	6.7	1.73	6.8	1.77	6.4	2.06
9. Organization	6.0	2.29	6.3	1.94	6.0	1.99	6.1	1.77
10. Control	5.9	2.05	5.7	1.41	5.8	1.76	6.0	1.12

APPENDIX 2. MISSOURI CHILDREN'S BEHAVIOR CHECKLIST SCALE SCORES BY AGE AND SEX FOR BLACK CHILDREN

Scale	Boys							
	Age 7		Age 8		Age 9		Age 10	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Aggression	7.0	2.30	7.3	2.00	7.1	2.50	6.6	2.34
2. Inhibition	4.0	2.81	4.2	3.24	4.7	3.44	3.5	2.89
3. Activity	2.7	2.92	2.9	2.29	2.7	2.24	3.1	2.56
4. Sleep disturbance	2.5	2.06	3.0	2.49	3.0	2.25	1.7	1.83
5. Somatization	0.7	1.19	1.5	1.62	1.5	1.53	1.4	1.53
6. Sociability	0.6	1.39	0.9	1.12	0.8	1.27	1.0	1.07

Scale	Girls							
	Age 7		Age 8		Age 9		Age 10	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Aggression	8.3	1.80	7.6	2.35	7.8	2.08	7.3	2.24
2. Inhibition	2.2	1.81	3.4	3.46	2.4	2.46	3.6	3.77
3. Activity	2.4	2.04	2.8	2.20	2.5	2.43	3.8	3.19
4. Sleep disturbance	1.8	2.17	2.3	2.41	1.6	1.99	2.0	2.25
5. Somatization	1.4	1.66	1.2	1.66	1.0	1.23	1.4	1.24
6. Sociability	0.8	1.05	0.9	1.44	0.7	0.96	1.1	1.68

APPENDIX 3. MISSOURI CHILDREN'S PICTURE SERIES SCALE SCORES BY AGE AND SEX FOR BLACK CHILDREN

Scale	Boys							
	Age 7		Age 8		Age 9		Age 10	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Conformity	26.2	6.25	24.5	8.10	25.2	8.04	26.2	7.97
2. Masculinity	12.5	3.54	12.5	3.56	13.6	3.59	12.4	3.92
3. Maturity	9.2	6.29	10.8	5.32	11.5	4.93	9.0	4.99
4. Aggression	13.0	2.65	12.4	2.79	12.2	2.58	13.0	2.58
5. Inhibition	14.8	4.67	13.9	4.24	14.2	4.40	12.4	4.23
6. Activity level	12.2	3.64	12.4	4.39	12.6	3.64	12.8	4.78
7. Sleep disturbance	9.7	3.50	10.7	4.08	11.1	4.25	9.1	3.62
8. Somatization	18.3	3.18	17.1	3.56	17.4	3.77	17.7	3.60

Scale	Girls							
	Age 7		Age 8		Age 9		Age 10	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Conformity	26.8	6.25	24.6	7.95	24.9	9.32	22.5	10.11
2. Masculinity	9.0	2.25	8.6	3.51	8.7	4.26	9.4	4.47
3. Maturity	8.3	5.91	10.3	5.55	9.8	5.74	11.1	4.97
4. Aggression	13.1	2.24	12.8	2.74	13.3	2.19	13.0	2.09
5. Inhibition	12.6	2.56	15.6	3.40	14.7	3.78	16.0	4.33
6. Activity level	12.6	4.30	14.2	4.10	14.2	4.14	14.2	3.64
7. Sleep disturbance	10.7	3.90	10.6	3.76	10.8	4.56	11.7	4.65
8. Somatization	17.6	3.24	18.5	4.27	18.8	4.66	17.3	4.54